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Introduction

This *Index to NASA Tech Briefs* has been prepared as a guide to technological innovations derived from the NASA space program. The publication is arranged in two major sections: the first contains a listing of the citations and abstracts of all NASA Tech Briefs published since January 1, 1965, arranged by subject category for ease of scanning; the second comprises three indexes: Subject Index, Originator/Tech Brief Number Index and Tech Brief/Originator Number Index. Each Tech Brief citation is prefixed by a Tech Brief number. The separate indexes contain explanatory notes which guide the user to the desired Tech Brief.

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B65-10001
CIRCUIT CONVERTS AM SIGNALS TO FM FOR MAGNETIC RECORDING
INNOVATOR NOT GIVEN /RCA/ JAN. 1965
GSFC-227
Convert AM signals to FM for magnetic recording by relaxation-type voltage-controlled oscillator /VCO/. This circuit may be used in radar, telemetry, and test equipment.

B65-10002
TUNNEL-DIODE CIRCUIT FEATURES ZERO-LEVEL CLIPPING
BUSH, E. G. JAN. 1965
GSFC-241
Tunnel-diode circuit starts clipping action as input voltage crosses zero axis. This clipper circuit is effective as limiter in FM receiver.

B65-10005
COMPUTER MODIFICATION REDUCES TIME OF PERFORMING ITERATIVE DIVISION
INNOVATOR NOT GIVEN /IBM/ FEB. 1965
M-FS-166
Time reduction in performing iterative division results from using a serial-by-parallel divider employing a look-ahead feature that predetermines the sign relationships of several iterations before the computer cycle begins. This method can be employed in any data handling system performing high-speed division.

B65-10006
MODIFICATION INCREASES LIGHT OUTPUT OF INJECTION-LUMINESCENT DIODES
INNOVATOR NOT GIVEN /RCA/ JAN. 1965 SEE ALSO B64-10283
M-FS-192
Removing a section of the electrode area from the N-face of injection-luminescent diodes for pumping lasers substantially increases light output. Light is emitted from the N-face as well as from the four edges of the diode.

B65-10010
INEXPENSIVE, STABLE CIRCUIT MEASURES HEART RATE
VICK, H. A. JAN. 1965
MSC-95
Inexpensive transistorized circuit provides reliable analog indications of heart rate in response to preamplified electrocardiograph signal applied to its input.

B65-10011
CIRCUIT IMPROVEMENT PRODUCES MONOSTABLE MULTIVIBRATOR WITH LOAD-CARRYING CAPABILITY
GOLDMAN, N. E. SCHAFFERT, J. C. JAN. 1965
GSFC-34A
Improved circuit provides greater reliability and load-carrying capabilities for monostable multivibrator.

B65-10012
HELICAL COAXIAL-RESONATOR MAKES EXCELLENT RF FILTER
INNOVATOR NOT GIVEN /RCA/ JAN. 1965
GSFC-243
Isolation of closely spaced transmitting and receiving frequencies of an antenna without insertion loss by filtering the receiver input is accomplished by an inner conductor with two winding helices and an outer conductor of aluminum. A tuning slug is at either end of the inner conductor form.

B65-10013
ZENER DIODE FUNCTION GENERATOR REQUIRES NO EXTERNAL REFERENCE VOLTAGE
BOLTE, G. BURNS, R. JAN. 1965
JPL-33
Function generator utilizing parallel impedance networks with zener diodes produces functions which are discontinuous in slope. The function generated appears at the output of the parallel network in the form of a voltage varying in time.

B65-10018
CARBON ARC IGNITION IMPROVED BY SIMPLE AUXILIARY CIRCUIT
INNOVATOR NOT GIVEN /RCA/ JAN. 1965
MSC-103
High voltage, low current pulse in series with arc power supply efficiently ignites a carbon arc. The easily and economically produced circuit is useful with arc burners and searchlights and with plasma jets.

B65-10023
MINIATURE STRESS TRANSDUCER HAS DIRECTIONAL CAPABILITY
SAN MIGUEL, A. SILVER, R. H. JAN. 1965
JPL-591
Miniature stress transducer uses a semiconductive piezoresistive element to detect stress only on specific axes. Measurement of internal mass stress is based on the compressive deformation of the transducer. The device is applicable to constant stress monitoring in building and dam structural parts.

B65-10025
LOGIC REDUNDANCY IMPROVES DIGITAL SYSTEM RELIABILITY
INNOVATOR NOT GIVEN /STANFORD RES. INST./ FEB. 1965
JPL-SC-069
Redundant-channel system automatically corrects any single error in a set of three binary signal channels. This system is especially applicable to digital computers where data is transmitted in parallel channels.

B65-10026
STEPPING MOTOR DRIVE CIRCUIT DESIGNED FOR LOW POWER DRAIN
INNOVATOR NOT GIVEN /HARVARD COLL./ FEB. 1965
GSFC-198
High power drain is eliminated by a circuit consisting of a divide-by-two stage, two identical inputs, a wiggle amplifier, driver, and power output stages to drive the step motor.

B65-10028
TRANSISTOR VOLTAGE COMPARATOR PERFORMS OWN SENSING
CLIFF, R. A. FEB. 1965
GSFC-228
Detection of the highest voltage input among a group of varying voltage inputs is accomplished by a transistorized voltage comparison circuit. The collector circuits of the transistors perform the sensing function. Input voltage levels are governed by the transistors.

B65-10030
LIBRARY OF DOCUMENTS COMPRESSED INTO LAP-HELD DISPLAY KIT
INNOVATOR NOT GIVEN /NATL. CASH REGISTER CO./ FEB. 1965
MSC-125
A lightweight Apollo flight kit containing microfilmed data is packaged in a hinged box with a viewing screen cover, and a writing surface. It is secured to the users lap.

B65-10033
PHOTOELECTRIC SEMICONDUCTOR SWITCH OPERATES WITH LOW LEVEL INPUTS
INNOVATOR NOT GIVEN /IBM/ FEB. 1965
JPL-SC-068
Photoelectric semiconductor switch with a buried emitter region avoids high-leakage currents across the emitter. It exhibits high emitter-to-collector transport efficiency beta at low signal levels.

B65-10041
PULSE HEIGHT ANALYZER OPERATES AT HIGH REPETITION RATES, LOW POWER
INNOVATOR NOT GIVEN /SPACE TECHNOL. LABS., INC./ FEB. 1965

WOO-046
Simple multistage transistor gating circuit provides a pulse height analyzer that operates at high repetition rates and low power. The circuit compares the input pulse heights to discrete reference voltages.

B65-10045
THERMISTOR CONNECTOR ASSEMBLY INCREASES ACCURACY OF MEASUREMENTS
INNOVATOR NOT GIVEN /ATLANTIC RES. CORP./ FEB. 1965
LANGLEY-62
Isolation of the thermistor from spurious heat transfer for accurately measuring ambient air temperatures is accomplished by a mounting consisting of a transparent plastic film bonded to a U-shaped phenolic board with depositions of aluminum on each face and upper edge, and a variable capacitor for fine tuning.

B65-10047
CIRCUIT DETECTS ERRORS IN ADDRESS CURRENTS FOR MAGNETIC CORE ARRAYS
INNOVATOR NOT GIVEN /IBM/ FEB. 1965
M-FS-234
Address current error detector generates a signal whenever any error producing conditions arise in magnetic core arrays. Can be used with test equipment and memory storage units.

B65-10048
MICROPARTICLE IMPACT SENSOR MEASURES ENERGY DIRECTLY
ALEXANDER, W. M. BERG, O. E. FEB. 1965
GSFC-252
Construction of a capacitor sensor consisting of a dielectric layer between two conductive surface layers and connected across a potential source through a sensing resistor permits measurement of energy of impinging particles without degradation of sensitivity. A measurable response is produced without penetration of the dielectric layer.

B65-10050
NULLING PYROMETER USES KERR CELL SHUTTER FOR FAST RESPONSE
INNOVATOR NOT GIVEN /WESTINGHOUSE ELEC. CORP./ FEB. 1965
NU-0010
Conventional pyrometer, in which Kerr cell replaces mechanical shutter and polarizers are added to filters, yields rapid shutter response.

B65-10051
METAL SHEATH IMPROVES THERMOCOUPLE USING GRAPHITE IN ONE LEG
INNOVATOR NOT GIVEN /WESTINGHOUSE ELEC. CORP./ FEB. 1965
NU-0011
Thermocouple using graphite in one leg is sealed in a moistureproof metal sheath which permits high EMF output and good mechanical strength.

B65-10052
ZENER DIODE IS STARTER FOR TRANSISTOR-REGULATED POWER SUPPLY
INNOVATOR NOT GIVEN /WESTINGHOUSE ELEC. CORP./ FEB. 1965
NU-0015
Zener diode in parallel with a silicon transistor supplies the starting current for a transistor-regulated power supply.

B65-10054
PULSE GENERATOR PERMITS NONDESTRUCTIVE TESTING OF COMPONENT BREAKDOWN VOLTAGE
INNOVATOR NOT GIVEN /HONEYWELL/ MAR. 1965
MSC-122
Nondestructive testing of the breakdown voltage of transistors and other electronic components is achieved by a simple relay circuit. The circuit operates by applying low-energy, high- voltage microsecond pulses to the components under test.

B65-10055
FM OSCILLATOR USES TETRODE TRANSISTOR
BOENSEL, D. W. MAR. 1965
JPL-82
Tetrode-driven crystal oscillator achieves large frequency variations for a given input signal. Frequency control is obtained by variation of the second base current of the tetrode.

B65-10056
VIBRATING-MEMBRANE ELECTROMETER HAS HIGH CONVERSION GAIN
COON, G. W. DIMEFF, J. APR. 1965
ARC-38
Vibrating-membrane transducer in a circuit can measure current below 10 to-the-minus 17 ampere. This electrometer has a high conversion gain and a minimum internal power consumption.

B65-10057
FEED-THROUGH HAS POLYTERMINAL FEATURE
SANDERS, L. H. MAR. 1965
M-FS-25
Feed-through connector with individual solder pots in the polyterminal side provides good connections with small amounts of solder and permits visual inspection of bonds. Poly- terminal also provides a friction mechanical bond to position conductors prior to soldering.

B65-10059
METAL DIAPHRAGM USED TO CALIBRATE MINIATURE TRANSDUCERS
INNOVATOR NOT GIVEN /ASTRO-SPACE LABS./ MAR. 1965
M-FS-207
Dynamic comparative calibration system measures response of miniature pressure transducers, The system is composed of an electromechanically-driven metal diaphragm, a calibrated and an uncalibrated transducer and an oscillator.

B65-10061
SIMPLE CONTROL DEVICE SENSES SOLAR POSITION
LONBORG, J. O. RANDALL, J. C. MAR. 1965
JPL-638
The amount of solar radiation incident on a specially prepared bimetallic strip is simply and reliably controlled by a light valve. This device is valuable for systems requiring temperature regulation.

B65-10062
PULSED PLASMA ACCELERATOR OPERATES REPETITIVELY WITHOUT COMPLEX CONTROLS
SABOL, A. P. MAR. 1965
LANGLEY-48
Self-repeating pulsed plasma accelerator operates with a wide variety of gases over a large range of pressures without complex control equipment. The accelerator combines a circular channel with a tangential channel at the entrance way of a high-velocity gas.

B65-10066
FUEL CELL SERVES AS OXYGEN LEVEL DETECTOR
INNOVATOR NOT GIVEN /GE/ MAR. 1965
JPL-SC-072
Monitoring the oxygen level in the air is accomplished by a fuel cell detector whose voltage output is proportional to the partial pressure of oxygen in the sampled gas. The relationship between output voltage and partial pressure of oxygen can be calibrated.

B65-10067
SENSITIVE LEVEL SENSOR MADE WITH SPIRIT LEVEL, GIVES ELECTRICAL OUTPUT
BRYANT, E. L. MAR. 1965
LANGLEY-49
Sensor incorporating a circular spirit level, electrical lamp and two pairs of photocells, provides an electrical indication of flat surface level deviation.

B65-10068
AUTOMATIC THERMAL SWITCH ACCELERATES COOLING-DOWN OF CRYOGENIC SYSTEM
WIEBE, E. R. MAR. 1965
JPL-655
Automatic switch uses short stainless steel tube with copper heat sinks to accelerate helium gas cooling and provides good thermal conductivity and good thermal insulation.

B65-10069
FEEDBACK OSCILLATOR FUNCTIONS AS LOW-LEVEL PULSE STRETCHER
INNOVATOR NOT GIVEN /SPERRY RAND CORP./ MAR. 1965
GSFC-261
Low trigger pulses of the pulse stretcher circuit are obtained by forward biasing the transistor oscillator. The loop gain is kept below unity and prevents free-running oscillation. Two parallel feedback loops improve the stretching capabilities.

B65-10072
SYNCHRONIZED PULSE GENERATOR NEEDS NO EXTERNAL POWER
CANCRO, C. A. JANNICHE, P. J., JR. MAR. 1965
GSFC-274
Simple circuit with high input and low output impedance generates a fast rise-time pulse synchronized with an input pulse of slower rise and fall times. Circuit requires no external power.

B65-10073
SYSTEM MEASURES ANGULAR DISPLACEMENT WITHOUT CONTACT
DAVIS, W. T. MAR. 1965
LANGLEY-46
Optic system coupled to an electronic detection and measuring system converts angular movement of reflected light to a direct readout, without any direct contact with the object.

B65-10076
LIGHT-SENSITIVE POTENTIOMETER MEASURES PRODUCT OF TWO VARIABLES
HAERTSCH, O. C. MAR. 1965
GSFC-240
The output voltage from a photoconductive potentiometer circuit using a galvanometer mirror reflecting the light beam is directly proportional to the product of the input voltage.

B65-10079
PHOTOELECTRIC SENSOR OUTPUT CONTROLLED BY EYEBALL MOVEMENTS
INNOVATOR NOT GIVEN /SPACO/ MAR. 1965
M-FS-274
The difference between the infrared absorption of the iris and infrared reflectivity of the eyeball controls the operation of a device consisting of an infrared source and amplifier, a cadmium selenide infrared sensor, and an infrared filter.

B65-10080
PHASE DETECTOR CIRCUIT SYNTHESIZES OWN REFERENCE SIGNAL
INNOVATOR NOT GIVEN /FAIRCHILD STRATOS CORP./ MAR. 1965
M-FS-247
Circuit with isolation amplifier connected to a frequency multiplier and synchronous phase detector synthesizes the phase reference signal from the phase modulated input signal.

B65-10085
TRANSDUCER SENSES DISPLACEMENTS OF PANELS SUBJECTED TO VIBRATION
PEA, R. O. MAR. 1965
ARC-37
Inductive vibration sensor measures the surface displacement of nonferrous metal panels subjected to vibration or flutter. This transducer does not make any physical contact with the test panel when measuring.

B65-10086
SYSTEM SELECTS FRAMING RATE FOR SPECTROGRAPH CAMERA
INNOVATOR NOT GIVEN /AM. OPT. CO./ MAR. 1965
LANGLEY-55
Circuit using zero-order light is reflected to a photomultiplier in the spectrograph monitors incoming radiation to provide an error signal which controls the advancing and driving rate of the film through the camera.

B65-10087
APPARATUS MEASURES SWELLING OF MEMBRANES IN ELECTROCHEMICAL CELLS
HENNIGAN, T. J. APR. 1965
GSFC-280
Apparatus consisting of a pressure plate unit, four springs of known spring constant and a micrometer measures the swelling and force exerted by the polymer membranes of alkaline electrochemical cells.

B65-10089
TRANSDUCER MEASURES TEMPERATURE DIFFERENTIALS IN PRESENCE OF STRONG ELECTROMAGNETIC FIELDS
APR. 1965
ARC-27
Measurement of temperature rise of cooling water under pressure and in strong electromagnetic fields is accomplished by a transducer using a magnetically shielded thermocouple arrangement. The thermocouple junctions are immersed in oil to isolate them from electric currents in the water.

B65-10091
SIMULATOR PRODUCES PHYSIOLOGICAL WAVEFORMS
EKEROOT, S. MAR. 1965
MSC-94
Physiological waveform simulator capable of producing signals to simulate an axiliary and a sternal electrocardiogram, blood pressure, respiratory rate and body temperature. This may be used to check out bioinstrumentation.

B65-10093
COMPUTER PROGRAMS SIMPLIFY OPTICAL SYSTEM ANALYSIS
INNOVATOR NOT GIVEN /HONEYWELL/ APR. 1965
GSFC-306
The optical ray-trace computer program performs geometrical ray tracing. The energy-trace program calculates the relative monochromatic flux density on a specific target area. This program uses the ray-trace program as a subroutine to generate a representation of the optical system.

B65-10096
DIGITAL SYSTEM ACCURATELY CONTROLS VELOCITY OF ELECTROMECHANICAL DRIVE
NICHOLS, G. B. APR. 1965
GSFC-287
Digital circuit accurately regulates electromechanical drive mechanism velocity. The gain and phase characteristics of digital circuits are relatively unimportant. Control accuracy depends only on the stability of the input signal frequency.

B65-10097
VARIABLE VOLTAGE SUPPLY USES ZENER DIODE AS REFERENCE
KLEINBERG, L. L. LAVIGNE, R. C. APR. 1965
GSFC-262
Using a zener diode as the reference element, a simple transistorized circuit provides a stable variable reference voltage.

B65-10102
SIMPLE CIRCUIT FUNCTIONS AS FREQUENCY DISCRIMINATOR FOR PFM SIGNALS
BILLINGSLEY, J. APR. 1965
GSFC-267
Simple circuit monitors the frequency of PFM /pulse frequency modulated/ telemetry signals. This discriminator can be used as a constant current integrator in such circuits as linear sweep and time delay.

B65-10103
IMPROVED MAGNETOMETER USES TOROIDAL GATING COIL
INNOVATOR NOT GIVEN /CORNELL UNIV./ APR. 1965
GSFC-249
Improved magnetometer employs a cylindrical, high permeability magnetic core with a toroidal gating coil and a solenoid pickup coil. Flux interaction can be reduced by electrostatically shielding the pickup coil from the gating coil. The magnetometer principle can be applied to navigation devices.

B65-10105
VARIABLE LOAD AUTOMATICALLY TESTS DC POWER SUPPLIES
BURKE, H. C., JR. SULLIVAN, R. M. APR. 1965
GSFC-291
Continuously variable load automatically tests dc power supplies over an extended current range. External meters moniter current and voltage, and multipliers at the outputs facilitate plotting the power curve of the unit.

B65-10108
MAGNETIC FIELD CONTROLS CARBON ARC TAIL FLAME
INNOVATOR NOT GIVEN /RCA/ APR. 1965
MSC-139
Polarity of two electromagnets placed near the exhaust flue cancels out a high carbon-arc field. The arc tail flame is correctly drawn to the exhaust flue and contamination is diverted. This device should reduce maintenance cycles on any arc-powered illuminator.

B65-10112
UNIJUNCTION FREQUENCY DIVIDER IS FREE OF BACKWARD LOADING
FAIRBANKS, A. F. APR. 1965
JPL-WOO-010
Simple frequency divider composed of relaxation oscillators uses unijunction transistors to reduce backward loading to a minimum. This circuit design is applicable in timing devices and sync generators for television systems.

B65-10118
TRANSISTORIZED CIRCUIT CLAMPS VOLTAGE WITH 0.1 PERCENT ERROR
INNOVATOR NOT GIVEN /RCA/ APR. 1965
GSFC-196
Transistorized clamping circuit clamps either of two voltage levels to input of digital-to-analog resistive matrix with 0.1 percent error. Clamping circuit technique has analog, digital, and hybrid circuit applications.

B65-10119
VARIABLE FREQUENCY TRANSISTOR INVERTERS USE MULTIPLE CORE TRANSFORMERS
INNOVATOR NOT GIVEN /DUKE UNIV./ APR. 1965
GSFC-183
Magnetic-coupled multivibrators containing two or more square-loop cores with multiple windings in a single transformer package, provide indirect frequency control and improved operational characteristics. This multivibrator can be used for power oscillators, nonlinear magnetic circuitry and telemetry circuits.

B65-10120
MULTIPLE TEST TUBES STIRRED MECHANICALLY
LEON, H. J. STRONG, I. J. APR. 1965
ARC-42
Mechanical device simultaneously stirs multiple test tubes under controlled laboratory conditions. The invention provides a variable stirring rate, minimal amount of contamination of tube contents, unattended and simple operation, and easy maintenance and cleaning.

B65-10123
EFFICIENT THIN FILM HEATING ELEMENT TAKES MINIMUM SPACE
BUSCH, A. H. APR. 1965
GSFC-289
Light, thin-film heating element is formed by vacuum deposition of metal onto a nonconductive surface to be heated. This small-sized heater has a very fast response time.

B65-10124
VARIABLE FREQUENCY MAGNETIC MULTIVIBRATOR GENERATES STABLE SQUARE-WAVE OUTPUT
PAULL, S. MAY 1965
GSFC-AE-21
Variable frequency magnetic multivibrator operates in a full wave fashion to provide a stable square wave output over wide variations in temperature and power supply potential. This invention is applicable in clocks and control devices.

B65-10125
SIMPLIFIED ELECTROMETER HAS EXCELLENT OPERATING CHARACTERISTICS
BRANTNER, R. E. MAY 1965
JPL-413
Simplified and improved electrometer circuit provides high-input impedance, stability of gain and operating point, linear response, and low power requirements.

B65-10127
TRAVELING-WAVE TUBE CIRCUIT SIMPLIFIES MICROWAVE RELAY
ALLEN, W. K. IPPOLITO, L. J. NACE, D. A. MAY 1965
GSFC-299
Circuit with a sawtooth-modulated traveling-wave tube, which acts as a frequency converter and as an amplifier, simplifies microwave transmission. Lower power losses and reduced size and weight are also realized in this circuit.

B65-10128
PIEZORESISTIVE GAGE TESTS PIN-CONNECTOR SOCKETS
BOND, W. W. MAY 1965
JPL-675
Connector pin consisting of a piezoresistive crystal, retainer spring and a bridge circuit with voltmeter is used to test connector sockets and may be adapted for multiple socket testing.

B65-10137
INSTRUMENT CALIBRATES LOW GAS-RATE FLOWMETERS
COPELAND, A. C. FULTON, W. C. SMITHER, M. A. MAY 1965
MSC-134
Electronically measuring the transit time of a soap bubble carried by the gas stream between two fixed points in a burette calibrates flowmeters used for measuring low gas-flow rates.

B65-10138
HIGH-GAIN AMPLIFIER HAS EXCELLENT STABILITY AND LOW POWER CONSUMPTION
KLEINBERG, L. L. MAY 1965
GSFC-272
Transistorized amplifier, in which an external reference voltage controls gain, combines high gain with stability and low power consumption. This circuit is useful in electronic servo and portable audio equipment.

B65-10139
SPHERICAL ELECTRODE ELIMINATES HIGH-VOLTAGE BREAKDOWN
FINKE, R. C. VETRONE, R. H. MAY 1965
LEWIS-155
Spherical electrodes surrounding electrode-dielectric junctions eliminate high-voltage breakdown. The gap between the spherical electrode and the dielectric must be of an optimum size for proper operation. Modified, this electrode should be suitable as a high-voltage feedthrough between various liquid and gaseous media.

B65-10142
AUXILIARY CIRCUIT ENABLES AUTOMATIC MONITORING OF EKG*S
INNOVATOR NOT GIVEN /TEX. INST. FOR REHABILITATION AND RES./ MAY 1965 SEE ALSO B65-10143 AND B65-10010
MSC-106
Auxiliary circuits allow direct, automatic monitoring of electrocardiograms by digital computers. One noiseless square-wave output signal for each trigger pulse from an electrocardiogram preamplifier is produced. The circuit also permits automatic processing of cardiovascular data from analog tapes.

B65-10143
DIGITAL-OUTPUT CARDIOTACHOMETER MEASURES RAPID CHANGES IN HEARTBEAT RATE
VICK, H. MAY 1965 SEE ALSO B65-10010 AND B65-10142
MSC-133
Cardiotachometer circuits produce an output voltage proportional to the heartbeat rate on a beat-by-beat basis. This is less complex and less

costly than the digital cardiotachometers.

B65-10145
LOGARITHMIC AMPLIFIER USES FIELD EFFECT TRANSISTORS
STEWART, J. L. MAY 1965
JPL-509
Solid-state amplifier utilizes field effect transistors and planar junction diodes to provide a logarithmic response to a wide range of input signals.

B65-10146
FREQUENCY OFFSET IN LINEAR FM/CW TRANSPONDER ELIMINATES CLUTTER
INNOVATOR NOT GIVEN /MELPAR/ MAY 1965
M-FS-249
Clutter is eliminated by offsetting the frequency of a transponder signal with respect to an interrogation signal. This improves the tracking of aircraft and spacecraft by FM/CW transponders.

B65-10151
ROTOR POSITION SENSOR SWITCHES CURRENTS IN BRUSHLESS DC MOTORS
INNOVATOR NOT GIVEN /WESTINGHOUSE ELEC. CORP./ MAY 1965
GSFC-315
Reluctance switch incorporated in an induction motor is used for sensing rotor position and switching armature circuits in a brushless dc motor. This device drives the solar array system of an unmanned space satellite.

B65-10152
CIRCUIT REDUCES DISTORTION OF FM MODULATOR
INNOVATOR NOT GIVEN /RCA/ MAY 1965
GSFC-257
Correction circuit improves the linearity of a voltage-variable capacitor used to modulate a free-running oscillator. This improvement only applies to audio frequency modulation and will not correct for slowly varying dc input in some telemetry systems.

B65-10158
LASER BEAM TRANSMITS ELECTRIC POWER
INNOVATOR NOT GIVEN /RCA/ JUN. 1965
GSFC-293
Semiconductor laser beam supplies sustained level of electrical power to remote location not served by conventional conductors. This system would be useful where transmission of energy is critical, such as in nuclear reactors, or other hazardous environments.

B65-10159
SOLID-STATE SWITCHING USED TO SPEED UP CAPACITIVE INTEGRATOR
NEWCOMB, A. L., JR. JUN. 1965
LANGLEY-104
Capacitive integrator circuit using silicon controlled switches /SCS/ insures output voltage linearly proportional to input pulse width. This circuit provides high input impedance and relatively low output impedance.

B65-10161
INTERFEROMETER COMBINES LASER LIGHT SOURCE AND DIGITAL COUNTING SYSTEM
INNOVATOR NOT GIVEN /MIT/ JUN. 1965
MSC-151
Measurement of small linear displacements in digital readouts with extreme accuracy and sensitivity is achieved by an interferometer. The instrument combines a digital electro-optical fringe-counting system and a laser light source.

B65-10165
SUPERCONDUCTOR MAGNETS USED FOR STAGGER-TUNING TRAVELING-WAVE MASER
INNOVATOR NOT GIVEN /RCA/ JUN. 1965
GSFC-292
Superconducting materials reduce size and weight of magnets used for stagger-tuning individual traveling-wave maser crystals. The invention is useful in microwave communication systems requiring a high information rate.

B65-10169
PHASE SHIFT FREQUENCY SYNTHESIZER IS EFFICIENT, SMALL IN SIZE
INNOVATOR NOT GIVEN /SPACE TECH. LABS./ JUN. 1965
M-FS-250
Phase shift frequency synthesizer produces suppressed-carrier signals at the sum and difference frequencies. All unwanted frequencies are suppressed by this small-sized synthesizer.

B65-10178
DC TO AC CONVERTER OPERATES EFFICIENTLY AT LOW INPUT VOLTAGES
INNOVATOR NOT GIVEN /DUKE UNIV./ JUN. 1965
GSFC-130
Self-oscillating dc to ac converter with transistor switching to produce a square wave output is used for low and high voltage power sources. The converter has a high efficiency throughout a wide range of loads.

B65-10182
FORCE CONTROLLED SOLENOID DRIVES MICROWELD TESTER
INNOVATOR NOT GIVEN /N. AM. AVIATION/ JUN. 1965
WOO-125
Solenoid-driven device tests the integrity of a microweld joint between an electronic component lead wire and a wire ribbon by applying tension stress to the joint. Variable measured force is provided when either destructive or nondestructive testing is performed.

B65-10183
MODIFIED INTERELEMENT SPACING IMPROVES YAGI ANTENNA ARRAY
BECK, F. B. JUN. 1965
LANGLEY-130
Symmetrical antenna array is designed by adjusting the Yagi disk interelement spacing so that the grating lobe of the array factor coincides with the first sidelobe of the element pattern.

B65-10184
PRESSURE SENSOR RESPONDS ONLY TO SHOCK WAVE
INNOVATOR NOT GIVEN /BOEING CO./ JUN. 1965
M-FS-238
Pressure sensor responds only to high pressure crest of a shock wave, and will not respond to conditions of overpressure. The sensor uses plates of a battery to produce voltage output used to actuate an alarm signal or crew escape system.

B65-10187
CRYSTAL MEASURES SHORT-TERM, LARGE-MAGNITUDE FORCES
PFEIFFER, C. G. JUN. 1965
JPL-77
By using the magnitude of piezoelectric crystal response to distortion and compression, this device measures transient accelerations and their rate of change. The invention could be used in a servo control system by supplementing the accelerometer and taking over its function when its range was exceeded.

B65-10193
LOGIC CIRCUIT EXHIBITS OPTIMUM PERFORMANCE
HUSSON, C. JUN. 1965
LANGLEY-129
Performance of circuits are compared to determine the optimum circuit configuration for implementation into microelectronic functions. Comparison is made in terms of power drain, propagation time, and component variations with temperature and load.

B65-10194
ANALOG-TO-DIGITAL CONVERTER HAS INCREASED RELIABILITY AND REDUCED POWER CONSUMPTION
THORNWALL, J. C. JUN. 1965
GSFC-246
Eight-bit analog-to-digital converter decreases average power consumption and increases component reliability. The converter uses solid-state components in pulse operation and magnetic core components for minimizing power consumption. The magnetic core components also increase reliability.

B65-10195
DEVICE MEASURES FLUID DRAG ON TEST VEHICLES
FREEMAN, R. JUDD, J. H. LEISS, A. JUN. 1965
LANGLEY-34
Electromechanical drag balance device measures the aerodynamic drag force acting on a vehicle as it moves through the atmosphere and telemeters the data to a remote receiving station. This device is also used for testing the hydrodynamic drag characteristics of underwater vehicles.

B65-10196
INEXPENSIVE ELECTRICAL CONNECTOR IS MOISTURE AND CORROSIONPROOF
INNOVATOR NOT GIVEN /N. AM. AVIATION/ JUN. 1965
1965
MSC-164
Compression-sealed electrical connector made principally of plastic components is used in a corrosive atmosphere. This inexpensive and moistureproof connector can be modified to provide a multiple-pin connector.

B65-10197
IMPROVED SOLDERLESS CONNECTOR IS EASILY DISCONNECTED
INNOVATOR NOT GIVEN /HUGHES AIRCRAFT CO./ JUN. 1965
JPL-SC-060
Compression type solderless connector is easily disconnected and reassembled and resists vibration. The connector, which uses a tapered, split sleeve that is tightened by a nut into a mating bug, is used in place of standard solder lugs and to connect unsolderable wire.

B65-10199
MODULAR THERMOELECTRIC CELL IS EASILY PACKAGED IN VARIOUS ARRAYS
EPSTEIN, J. JUN. 1965
GSFC-339
Modular thermoelectric cells are easily packaged in various arrays to form power supplies have desirable voltage and current output characteristics. The cells employ two pairs of thermoelectric elements, each pair being connected in parallel between two sets of aluminum plates. They can be used as solar energy conversion devices.

B65-10200
DENSITY TRACE MADE WITH COMPUTER PRINTOUT
WILSON, M. JUN. 1965
GSFC-322
Special drum for a computer-controlled printer improves density trace of scientific data. The drum provides uniformly shaped characters and evenly spaced variations of print density that precisely reflect data magnitude. This device plots temperature profiles, geographic contours, pressure gradients, electric potential gradients, and magnetic field configurations.

B65-10202
QUICK-DISCONNECT COUPLING SAFE TRANSFER OF HAZARDOUS FLUIDS
DEWITT, R. L. SCHMIDT, H. W. JUN. 1965
LEWIS-125
Quick-disconnect coupling is used for uncoupling of plumbing during ground-to-vehicle transfer of cryogenic and hazardous fluids. The coupling allows remote positive control of liquid pressure and flow during the transfer operation, remote connection and separation capabilities, and negligible liquid spillage upon disconnection

02 ENERGY SOURCES

B65-10036
IONIZATION VACUUM GAGE STARTS QUICKLY, IS UNAFFECTED BY SPURIOUS CURRENTS
GARWOOD, D. C. FEB. 1965
JPL-304
Ionization vacuum gauge with a switch-operated starting device and a microammeter begins functioning quickly in a high vacuum. The microammeter is also protected by its circuit design from spurious currents.

B65-10046
WIDE-APERTURE SOLAR ENERGY COLLECTOR IS LIGHT IN WEIGHT
INNOVATOR NOT GIVEN /BECKMAN INSTRUMENTS/ FEB. 1965
JPL-SC-055
By mounting the Fresnel lens in eight steps above three paraboloidal reflector rings of epoxy resin with aluminized surfaces, a light weight, wide-aperture solar energy collector is devised.

B65-10071
SIMPLE OPTICAL SYSTEM USED TO ALIGN SPECTROGRAPH
EXTON, R. J. MAR. 1965
LANGLEY-92
Optically fast, portable spectrograph incorporates auxiliary optics in a boresight technique to use the zero order of the grating for visual alignment. This device obtains moderately resolved spectra of a multitude of light sources.

B65-10081
MAGNETIC FIELD TEST COILS ARE TEMPERATURE COMPENSATED
INNOVATOR NOT GIVEN /SPECTRA PHYS./ APR. 1965
GSFC-294
Magnetic field test coils with auxiliary winding wound opposite to main coil winding eliminates changes in field configurations due to temperature changes. The auxiliary coil is made with aluminum wire.

B65-10082
MULTIPLE ELEMENT SOFT X-RAY SOURCE PRODUCES WIDE RANGE OF RADIATION
CARUSO, A. J. NEUPERT, W. M. MAR. 1965
GSFC-286
A rotating mount with target elements positioned independently for direct electron bombardment produces soft X-ray radiation with a wide range of characteristics. The device may be used to study solar radiation from a satellite.

B65-10084
MODIFIED CONTOUR PROJECTOR MAKES EXCELLENT CONTOUR DENSITOMETER
EXTON, R. J. MAR. 1965
LANGLEY-93
Thin glass beam splitter, densitometer head, and densitometer electronics are incorporated in a standard contour projector. The density contour of small areas of photographic film can be read. This instrument can be used as a research tool in process engineering.

B65-10100
ROTATING FILTERS PERMIT WIDE RANGE OF OPTICAL PYROMETRY
EXTON, R. J. SIVITER, J. H., JR. STRASS, H. K.
APR. 1965
LANGLEY-33
Gear-driven dual filter disks of graduated density vary linearly with respect to rotation, allowing a wide range of photographic pyrometry. This technique is applicable in metallurgy, glass, plastics and refractory research, and crystallography.

B65-10122
MICROWAVE TECHNIQUE MEASURES PLASMA CHARACTERISTICS
LEONARD, W. F. APR. 1965
LANGLEY-134
Plasma electron density and temperature distribution is measured by passing a high frequency millimeter wave through plasma. Variations in density and temperature are determined by measuring insertion loss as the plasma travels between the microwave transmitting and receiving antennas

B65-10129
APPARATUS PERMITS FLEXURE TESTING OF SPECIMENS AT CRYOGENIC TEMPERATURES
DENABURG, C. R. REECE, O. Y. MAY 1965

M-FS-257
Cryostat with support structure for test specimen allows flexure fatigue testing of honeycomb composite sandwich structures at cryogenic temperatures. The cryostat consists of a cryogen container enclosing two pairs of yokes which support two rotating end clamps.

B65-10132
SIMPLE CIRCUIT POSITIONS FILM FRAMES IN PROJECTOR
SILVER, R. H. MAY 1965
JPL-508
Individual frames on a photographic film strip in a projector are automatically positioned by a simple circuit. The circuit uses a photodiode that senses frame registry position and a relay that stops the film-advance motor to suspend the film at point of registry.

B65-10133
PROBE MEASURES CHARACTERISTICS OF HOT GAS STREAM
INNOVATOR NOT GIVEN /PLASMADYNE CORP./ MAY 1965
M-FS-240
Shielded, tubular flow calorimeter operated by valve position measures characteristics of a hot gas stream of unknown composition. Measurements of mass flow density and total heat content per unit mass, total heat content per unit mass only, and pitot pressure are made.

B65-10157
INTERNAL COOLING INCREASES RANGE OF IMMERSION-TYPE TEMPERATURE PROBE
LANZO, C. D. JUN. 1965
LEWIS-171
Temperature probe used in a high temperature, high velocity gas stream consists of cooled outer shell and a cooled platinum sensing tube with iron constantan thermocouples.

B65-10171
FRESNEL ZONE PLATE FORMS IMAGES AT WAVELENGTHS BELOW 1000 ANGSTROMS
INNOVATOR NOT GIVEN /SMITHSONIAN INST./ JUN. 1965
GSFC-231
Fresnal zone plate with openings replacing the usual transparent rings produces images in a vacuum ultraviolet. The plate is made by etching and electrodeposition.

B65-10186
ELECTRONIC MODULES EASILY SEPARATED FROM HEAT SINK
INNOVATOR NOT GIVEN /WESTINGHOUSE ELEC. CORP./ JUN. 1965 SEE ALSO B63-10033
MSC-142
Metal heat sink and electronic modules bonded to a thermal bridge can be easily cleaved for removal of the modules for replacement or repair. A thin film of grease between a fluorocarbon polymer film on the metal heat sink and an adhesive film on the modules acts as the cleavage plane.

B65-10188
REFRACTORY METAL SHIELDING /INSULATION/ INCREASES OPERATING RANGE OF INDUCTION FURNACE
EBIHARA, B. T. JUN. 1965
LEWIS-202
Thermal radiation shield contains escaping heat from an induction furnace. The shield consists of a sheet of refractory metal foil and a loosely packed mat of refractory metal fibers in a concentric pattern. This shielding technique can be used for high temperature ovens, high temperature fluid lines, and chemical reaction vessels.

03 MATERIALS (CHEMISTRY)

B65-10004
SCREENING TECHNIQUE MAKES RELIABLE BOND AT ROOM TEMPERATURE
INNOVATOR NOT GIVEN /IBM/ JAN. 1965
M-FS-227
Stainless-steel screen used to lay room temperature curing epoxy adhesive permits reliable bonding of electronic circuits boards. This technique would be useful with thin-walled structures that warp during conventional bonding operations.

B65-10015
IMPROVED CONDUCTIVE PASTE SECURES BIOMEDICAL ELECTRODES
INNOVATOR NOT GIVEN /BAYLOR UNIV./ JAN. 1965 SEE ALSO B64-10025
MSC-107
Nontoxic paste consisting of a dispersion of graphite or silver granules in a mixture of polyvinylpyrrolidone and diluted glycerol secures biomedical electrodes to human skin. Silver paste has a high electrical conductivity and forms a bond between metal and moist or dry skin.

B65-10016
ADHESIVE FOR VACUUM ENVIRONMENTS RESISTS SHOCK AND VIBRATION
INNOVATOR NOT GIVEN /WESTINGHOUSE ELEC. CORP./ FEB. 1965
MSC-56
A mixture of a polyamide, an epoxy resin, and fine silica or glass microballoons provides an adhesive which is flexible, resistant to shock and vibration, and has improved heat-transfer characteristics.

B65-10024
FLUID PRESSURE USED TO TEST TURBOPUMP BEARINGS
INNOVATOR NOT GIVEN /AEROJET-GEN. CORP./ FEB. 1965
NU-0001
Testing of turbopump bearings operating in an intense radiation field is accomplished by the use of a fluid bearing tester providing radial and axial loading.

B65-10032
WIRE WINDING INCREASES LIFETIME OF OXIDE-COATED CATHODES
KERSLAKE, W. VARGO, D. FEB. 1965 SEE ALSO AIAA PAPER-64-683
LEWIS-154
Refractory-metal heater base wound with a thin refractory metal wire increases the longevity of oxide-coated cathodes. The wire-wound unit is impregnated with the required thickness of metal oxide. This cathode is useful in magneto-hydrodynamic systems and in electron tubes.

B65-10034
GAGE MEASURES ELECTRICAL CONNECTOR PIN RETENTION FORCE
INNOVATOR NOT GIVEN /RCA/ FEB. 1965
JPL-SC-071
The retention force of a female connector pin is measured by observing the action of a calibrated spring in a gauge consisting of housing, a plunger terminating in a male subminiature connector pin and the tension spring.

B65-10043
MOUTHPIECE ADAPTER FOR PIPETTES PROTECTS MOUTH FROM HARMFUL LIQUIDS
MC SMITH, D. G. FEB. 1965
LANGLEY-47
To prevent the laboratory technicians mouth from contacting harmful liquids, a device with a hermetically sealed elastic bellows is attached to a standard pipette.

B65-10044
FLEXIBLE CURTAIN SHIELDS EQUIPMENT FROM INTENSE HEAT FLUXES
INNOVATOR NOT GIVEN /ARROWHEAD PROD./ MAR. 1965
M-FS-48
Flexible, high strength curtain made of fiberglass-silicone elastomer laminate provides thermal shielding for equipment.

B65-10058
POROUS CERAMIC CURES AT MODERATE TEMPERATURES, IS GOOD HEAT INSULATOR
EUBANKS, A. G. HUNKELER, R. E. FEB. 1965

GSFC-162
Good thermal insulation is provided by a foamed ceramic material with the desirable characteristics of low thermal conductivity, the ability to withstand thermal shock and of accurately controllable density and porosity. It is easily molded and adheres to metals but not plastics.

B65-10065
SPHERICAL MODEL PROVIDES VISUAL AID FOR CUBIC CRYSTAL STUDY
BACIGALUPI, R. J. SPAKOWSKI, A. E. MAR. 1965
LEWIS-108
Transparent sphere of polymethylmethacrylate with major zones and poles of cubic crystals is used to make crystallographic visualizations and to interpret Laue X-ray diffraction of single cubic crystals.

B65-10083
DIDYMIUM COMPOUND IMPROVES NICKEL-CADMIUM CELL
INNOVATOR NOT GIVEN /GE/ MAR. 1965
GSFC-295
Nickel electrodes impregnated with an additive solution of didymium hydrate and nitric acid mixed with nickel nitrate increases ampere-hour capacity of cells and does not affect the voltage characteristics.

B65-10088
FIBERGLASS PARTS CURED DURING FILAMENT WINDING ELIMINATES OVEN, SAVES TIME
CARMODY, R. J. APR. 1965
M-FS-14
Resistance wire layer is introduced during winding of the fiberglass filaments with simultaneous heating. Emission of heat from the wire layer cures second fiberglass layer.

B65-10092
LIGHTWEIGHT ALUMINUM CASTING ALLOY IS USEFUL AT CRYOGENIC TEMPERATURES
APR. 1965
M-FS-267
M-45, a lightweight, high purity aluminum casting alloy has superior tensile properties for use at cryogenic temperatures.

B65-10095
CARBON-ARC ROD HOLDER HAS LONG LIFE, REDUCES ARC SPLATTER
INNOVATOR NOT GIVEN /RCA/ APR. 1965
MSC-144
Carbon-arc rod holder with front end of beryllium oxide, a high electrical resistor and good thermal conductor, prevents nonuniform burning of the positive carbon rod and corrosion of the rod holder. Useful in optical instrument light sources.

B65-10106
MINIATURE BEARINGS LUBRICATED BY SONIC DISPERSION METHOD
INNOVATOR NOT GIVEN /LITTON IND./ APR. 1965
M-FS-202
Evenly distributing a monomolecular film over the balls and tracks of miniature precision ball bearings by sonic dispersion results in precise lubrication which prevents lubricant bleed out to adjacent components. Varying the lubricant-to-solvent ratio of the mixture causes varying lubricant coating thicknesses.

B65-10107
CRACK DETECTION METHOD IS SAFE IN PRESENCE OF LIQUID OXYGEN
INNOVATOR NOT GIVEN /BOEING CO./ APR. 1965
M-FS-236
Visual flaw detection method for metals utilizes color precipitate. This method can be used safely in the presence of liquid oxygen.

B65-10117
DOUBLE GLOVES REDUCE CONTAMINATION OF DRY BOX ATMOSPHERE
HERBELL, T. P. QUANTINETZ, M. REINHARDT, G.
APR. 1965
LEWIS-211
Pair of encased low permeability hand gloves between which an inert gas circulates reduces dry box contamination. This innovation is applicable to dry boxes using radioactive and alkali metal compounds, submicron powders, and liquid metals.

B65-10136
VAPOR PRESSURE MEASURED WITH INFLATABLE PLASTIC BAG
INNOVATOR NOT GIVEN /GEOPHYS. CORP. OF AM./ MAY 1965
GSFC-281
Deflated plastic bag in a vacuum chamber measures initial low vapor pressures of materials. The bag captures the test sample vapors and visual observation of the vapor-inflated bag under increasing external pressures yields pertinent data.

B65-10140
GALVANIC CORROSION REDUCED IN ALUMINUM FABRICATIONS
MAY 1965
M-FS-272
Titanium alloy fasteners dipped in zinc chromate primer are installed while wet in protective coated aluminum panels to reduce galvanic corrosion. Moisturetight seals at fastener points are also provided.

B65-10156
INORGANIC PAINT IS DURABLE, FIREPROOF, EASY TO APPLY
SCHUTT, J. B. JUN. 1965
GSFC-366
Inorganic paint with a water-potassium silicate base is impervious to water. It is also fireproof and adheres to various surfaces exposed to wide temperature fluctuations

B65-10162
ELECTROLESS NICKEL RESIST USED IN ALKALI-ETCHING OF ALUMINUM
INNOVATOR NOT GIVEN /SCHJELDAHL /G. T./ CO./ JUN. 1965
GSFC-284
Electroless nickel resist is unaffected by caustic soda applied as a milling or etching agent on aluminum.

B65-10164
IRRADIATION IMPROVES PROPERTIES OF AN AROMATIC POLYESTER
BELL, V. L., JR. JUN. 1965
LANGLEY-115
Aromatic polyester, PEN-2,6, is improved through cross-linking effected by radiation. Polymer retains properties of high tensile strength and toughness and stability at high temperatures.

B65-10167
REFRACTORY OXIDES EVALUATED FOR HIGH-TEMPERATURE USE
JUN. 1965
LANGLEY-121
Partially calcia-stablized zirconia used for insulation and heat-storage in high temperature /3000 deg to 4000 deg F/ cyclically operated pebbie bed air heater.

B65-10172
ALUMINUM ALLOYS PROTECTED AGAINST STRESS-CORROSION CRACKING
INNOVATOR NOT GIVEN /ALCOA RES. LABS./ JUN. 1965
M-FS-235
Topcoat of epoxy-polyamide paint is effective protection for aluminum alloys against stress corrosion cracking. The paint can be used on unprimed surfaces.

B65-10173
PEEL RESISTANCE OF ADHESIVE BONDS ACCURATELY MEASURED
INNOVATOR NOT GIVEN /RCA/ JUN. 1965
GSFC-320
Strength of adhesive bond between layers of laminated material is tested by peel force to the facing with a tensile testing machine. Testing

jig has stainless steel rollers which constrain material to move horizontally while maintaining free end of facing at constant 90 deg angle.

B65-10175
TANTALUM CATHODE IMPROVES ELECTRON-BEAM EVAPORATION OF TANTALUM
INNOVATOR NOT GIVEN /ELECTRO-OPTICAL SYSTEMS/ JUN. 1965
JPL-W00-021
Tantalum cathode is used in assembly for electron beam evaporation of tantalum onto a substrate. The cathode and anode are made of pure tantalum rather than tungsten to prevent contamination of the tantalum film deposited on the substrate.

B65-10179
REUSABLE NEOPRENE JACKET PROTECTS PARTS FOR CHEMICAL MILLING
INNOVATOR NOT GIVEN /RYAN AERONAUTICAL CO./ JUN. 1965
W00-071
Reusable neoprene jacket is used to prepare metal part or panel for chemical milling. Jacket covers back and upper rim of part and is sealed before the masking solution is applied to surface to be milled. This reduces amount of masking material required for milling identical parts and increases production.

B65-10189
TESTING DEVICE SUBJECTS ELASTIC MATERIALS TO BIAXIAL DEFORMATIONS
BECKER, G. W. JUN. 1965
JPL-616
Testing device stretches elastic materials biaxially over large deformation ranges and varies strain ratios in two perpendicular directions. The device is used in conjunction with a tensile testing machine, which holds the specimen and permits control over the direction and magnitude of the stresses applied.

B65-10190
IR-TRANSMISSION GLASSES FORMED FROM OXIDES OF BISMUTH AND TELLURIUM
ULRICH, D. R. JUN. 1965
M-FS-279
Bismuth trioxide-tellurium dioxide glasses have improved infrared transmission characteristics.

04 LIFE SCIENCES

NO CITATIONS IN THIS ISSUE

05 MECHANICAL

B65-10003
ILLUMINATED DISPLAY PANEL IS EASILY CHANGED
INNOVATOR NOT GIVEN /IBM/ JAN. 1965
MSC-108
Photographic negative placed between two plastic sheets and back-lighted in selected areas prepares illuminated multicolored display panels. The device is inexpensive, easily changed, and quickly fabricated.

B65-10007
THERMOCOMPRESSION BONDING PRODUCES EFFICIENT SURFACE-BARRIER DIODE
INNOVATOR NOT GIVEN /IBM/ JAN. 1965
JPL-SC-066
Thermocompression bonding of a gold wire to a gallium-arsenide wafer produces a quality surface barrier diode with fast recovery times. The properties of this combination may be useful in semiconductor devices.

B65-10008
SHOCK ABSORBER PROTECTS MOTIVE COMPONENTS AGAINST OVERLOADS
INNOVATOR NOT GIVEN /DOUGLAS AIRCRAFT CO./ JAN. 1965
W00-092
Shock absorber with an output shaft, hollow gear, and a pair of springs forming a resilient driving connection between shaft and gear, operates when abnormally high torques are applied. This simple durable frictional device is valuable in rotating mechanisms subject to sudden overloads.

B65-10009
BONN, J. L. GARDNER, D. E. FEB. 1965
LEWIS-182
A tool is designed which facilitates the forming of wire grids used in manufacturing strain gauge grids. Flattening the grid wire by a cold working process produces a stabilized grid which can be readily handled for storage or shipment.

B65-10014
USE OF TEAR RING PERMITS REPAIR OF SEALED MODULE CIRCUITRY
INNOVATOR NOT GIVEN /IBM/ JAN. 1965
M-FS-210
Improved packaging technique for modulator electronic circuitry utilizes a tear ring which may be removed for repair and resealed. The tear ring is put over the container and header to which the electronic circuit assembly has been attached.

B65-10017
EXPLOSIVES ACTUATE NONMAGNETIC INDEXING DEVICE
BAUERNSCHUB, J. P., JR. JAN. 1965
GSFC-237
Nonmagnetic explosive-actuated indexing device creates magnetic field that can be tolerated by a sensor.

B65-10019
WIDE-ANGLE SENSOR MEASURES RADIANT HEAT ENERGY IN CORROSIVE ATMOSPHERES
INNOVATOR NOT GIVEN /BOEING CO./ JAN. 1965 SEE ALSO B63-10004
M-FS-228
Ellipsoidal cavity device measures radiant heat energy over wide incident angles in corrosive atmospheres. The instrument consists of a cavity in copper heat sink sealed with sapphire window to protect thermocouple.

B65-10020
OPTICAL ARRANGEMENT INCREASES USEFUL LIGHT OUTPUT OF SEMICONDUCTOR DIODES
INNOVATOR NOT GIVEN /IBM/ JAN. 1965 SEE ALSO B64-10297
JPL-SC-064
Useful light output of semiconductor diodes increased by incorporating the diode in an integral reflector and lens assembly. This reduces normal reflection losses between the diode and the air.

B65-10021
PICKUP DEVICE READS PRESSURES FROM PORTS IN ROTATING MECHANISMS
JANAS, B. JAN. 1965 SEE ALSO B64-10031
LEWIS-158
Indexing pickup monitors fluid pressures from ports at various angles on high or low speed rotating mechanisms in operation. By a simple axial movement of a takeoff connector, angle changing takes place. This device can be adapted for electric current monitoring.

B65-10022
KNOB LINKAGE PERMITS ONE-HAND CONTROL OF SEVERAL OPERATIONS
CODDING, G. C. LAVENDER, C. E. JAN. 1965
MSC-30
Electromechanical device with single knob provides one-hand control of numerous electrical or mechanical functions. The principle of this design may have application to remote-control switching devices.

B65-10027
FLUID-PRESSURE MEASUREMENT APPARATUS USES SHORT-LENGTH MANOMETER TUBES
SATHER, B. I. MAR. 1965
LEWIS-28
System of short length U-tube manometers with a proportionally divided reference pressure measures high fluid pressures.

B65-10029
SEISMIC TRANSDUCER MEASURES SMALL HORIZONTAL DISPLACEMENTS
GREENWOOD, T. L. MAR. 1965
M-FS-81

Pendular seismic transducer mounted on base plate measures small horizontal displacements of structures subjected to vibration where no fixed reference point is available. Enclosure of transducer in transparent plastic case prevents air currents from disturbing the pendulum balance.

B65-10031
SPRING LOADED BEADED CABLE MAKES EFFICIENT WIRE PULLER
INNOVATOR NOT GIVEN /N. AM. AVIATION/ FEB. 1965
1965
WOO-108
An efficient wire puller consists of a steel probe with a hole in one end fastened to a steel cable which is strung with metal beads compressed by spring loaded ferrules. This device allows cables to be pulled or forced around bends and elbows in pipes or tubes.

B65-10035
OCEANBORNE TRANSPONDER PLATFORM HAS GOOD STABILITY
INNOVATOR NOT GIVEN /IBM/ FEB. 1965
M-FS-171
Determination of space vehicle range and orbit is aided by a stable subsurface oceanic transpounder. This device consists of a buoy held below the surface by a three-point system of anchors and mooring lines with an above surface antenna.

B65-10037
IMPROVED HOLDER PROTECTS CRYSTAL DURING HIGH ACCELERATION AND IMPACT
LE VAY, K. H. FEB. 1965
JPL-463
A plastic holder, which retains a crystal blank with standard silvered contacts sandwiched between two copper contacts, protects the crystal against vibration during high acceleration and impact.

B65-10038
FASTENER PROVIDES COOLING AND COMPENSATES FOR THERMAL EXPANSION
INNOVATOR NOT GIVEN /AEROJET-GEN. CORP./ FEB. 1965
NU-0003
A fastener composed of a concentric bellows welded to two plates forming an annular cavity provides cooling and thermal expansion compensation in a high temperature environment.

B65-10039
NONRESONANT SUPPORT FACILITATES VIBRATION TESTING OF STRUCTURES
INNOVATOR NOT GIVEN /BOEING CO./ FEB. 1965
M-FS-224
An essentially frictionless four-point support system which utilizes bearings and pistons and allows for determination of vibration frequencies of large structures. Retardation of vertical or horizontal motion is due to the viscous damping by the hydrostatic pressure of the oil or by adjustment of the gas volume in the accumulator.

B65-10040
VALVE DESIGNED WITH ELASTIC SEAT
MAC GLASHAN, W. F., JR. FEB. 1965
JPL-442
Absolute valve closure is accomplished by a machined valve with an axially annular channel which changes the outlet passage into a thin tubular elastic seat member with a retainer backup ring. The elasticity of the seat provides tight conformity to ball irregularity.

B65-10042
FLEXURE SUPPORT SYSTEM PROTECTS THERMALLY AND DYNAMICALLY LOADED MODELS
CRUMPLER, W. B. FEB. 1965
LANGLEY-39
The design of an eight legged flexure support system which permits differential thermal expansion of thin skinned models subjected to high temperatures is done by setting the lengthwise axes of the supporting legs approximately normal to the line of absolute motion of the model supported.

B65-10049
SCREW LOCKING CUPS QUICKLY AND NEATLY CRIMPED
INNOVATOR NOT GIVEN /WESTINGHOUSE ELEC. CORP./
FEB. 1965
NU-0009
A tool consisting of a positioning pin which is engaged in the screw and depressed until the tool body contacts the locking cup permits quick and neat crimping.

B65-10053
SEAL ALLOWS BLIND ASSEMBLY AND THERMAL EXPANSION OF COMPONENTS
INNOVATOR NOT GIVEN /WESTINGHOUSE ELEC. CORP./
FEB. 1965
NU-0005
The design of a seal consisting of two concentric cylinders with outer and inner threaded elements attached to each side of the system interface withstands large temperature changes and allows for blind assembly.

B65-10060
NEW ALLOY BRAZES TITANIUM TO STAINLESS STEEL
INNOVATOR NOT GIVEN /N. AM. AVIATION/ MAR. 1965
1965
MSC-102
Brazing alloy of palladium, silver and silicon is used in brazing titanium to stainless steel without embrittling metals at the brazed interfaces.

B65-10063
CERAMIC-COATED BOAT IS CHEMICALLY INERT, PROVIDES GOOD HEAT TRANSFER
SPITZER, C. R. MAR. 1965
LANGLEY-90
Refractory metal foil sprayed with ceramic coating serves as evaporating boat for inorganic materials. The high thermal conductivity of this boat makes it useful with ohmic heaters.

B65-10064
DEVICE MEASURES CURVED SURFACE FINISH ON GEAR TEETH
INNOVATOR NOT GIVEN /GE/ MAR. 1965
WOO-112
Measurement of the curved surface finish on gear teeth is made by a device used in conjunction with a conventional profilometer.

B65-10070
SIMPLE SCALE INTERPOLATOR FACILITATES READING OF GRAPHS
FETTERMAN, D. E., JR. MAR. 1965
LANGLEY-88
Simple transparent overlay with interpolation scale facilitates accurate, rapid reading of graph coordinate points. This device can be used for enlarging drawings and locating points on perspective drawings.

B65-10074
NITROGEN DIOXIDE PRODUCED BY SELF-SUSTAINED PYROLYSIS OF NITROUS OXIDE
SABOL, A. P. MAR. 1965
LANGLEY-32
Apparatus is developed for achieving continuous self-sustaining pyrolysis reaction in the production of nitrogen dioxide from nitrous oxide. The process becomes self-sustaining because of the exothermic reaction and the regenerative heating of the gases in the pyrolysis chamber.

B65-10075
TENSION IS SERVO CONTROLLED IN FILM ADVANCE SYSTEM
INNOVATOR NOT GIVEN /AM. OPT. CO./ MAR. 1965
LANGLEY-54
Servocontrol device feeds film into a roller system. Two linear potentiometers connected to spring loaded tension rollers furnish servo input signal. Can be used in any continous material transport system.

B65-10077
NEW COUPLING COMPENSATES FOR SHAFT MISALIGNMENT
INNOVATOR NOT GIVEN /WESTINGHOUSE ELEC. CORP./

MAR. 1965
NU-0013
Coupling of splined shafts with slight misalignment is accomplished by means of a crown spline and sleeve arrangement.

B65-10078
FABRICATION METHOD PRODUCES HIGH-GRADE ALUMINA CRUCIBLES
PALMOUR, H. MAR. 1965
M-FS-216
Alumina-binder mixture, which has been dry pressed in a die using a mating punch, forms crucibles of various configurations and after firing results in a ceramic structure for use in diffusion experiments.

B65-10090
COMPACT ASSEMBLY GENERATES PLASTIC FOAM, INFLATES FLOTATION BAG
APR. 1965
LANGLEY-96
Device for generating plastic foam consists of an elastomeric bag and two containers with liquid resin and a liquid catalyst. When the walls of the containers are ruptured the liquids come into contact producing foam which inflates the elastomeric bag.

B65-10094
CUTTER AND STRIPPER REDUCES COAXIAL CABLE CONNECTION TIME
THOMPSON, F. E. APR. 1965
ARC-40
Consisting of three pivoted members, this hand cutter and stripper positions to cut shielding and insulation at the right distance and depth. Coaxial cable is prepared quickly and accurately for connector attachment.

B65-10098
CONTACT STRESSES CALCULATED FOR MINIATURE SLIP RINGS
ALBRIGHT, F. G. DOMEREST, K. E. HORTON, J. C.
APR. 1965
M-FS-280
Using mathematical formulations to plot the graphs of the contact preload versus the Hertzian load, calculations of unit loading of the preloaded brushes on slip rings can be made. This optimizes the design of contact brushes and miniature slip rings.

B65-10099
SLIT FEEDS REDUCE UNBALANCED TORQUES IN GAS-LUBRICATED BEARINGS
BATSCH, F. F. LAUB, J. H. APR. 1965 SEE ALSO B63-10123 AND B64-10050
JPL-264
Gas-lubricated journal bearing with narrow radial slits forming circular gas-feed passages regulates gas flow in precision instruments. Asymmetrical flow pattern and unbalanced torques are prevented.

B65-10101
JIG AND FIXTURE AID FABRICATION OF TUNGSTEN RIVETS
CHATTIN, J. H. APR. 1965
LEWIS-185
Jig and fixture that holds several lengths of tungsten rods produces rivets simply and inexpensively. The apparatus allows sufficient tungsten to be exposed for heating and forging into a rivet head.

B65-10104
LEAF-SPRING SUSPENSION PROVIDES ACCURATE PARALLEL DISPLACEMENTS
MC CREARY, R. A. APR. 1965
JPL-480
Leaf-spring suspension device with the springs symmetrically mounted on suspension frames provides accurate parallel displacements of loads over short linear distances.

B65-10109
ROCK BIT REQUIRES NO FLUSHING MEDIUM TO MAINTAIN DRILLING SPEED
INNOVATOR NOT GIVEN /HUGHES AIRCRAFT CO./ APR. 1965
JPL-WOO-031
Steel drill bit having terraces of teeth intersected by spiral grooves with teeth permits the boring of small holes through rock with low power. The cuttings are stored in a chamber behind the cutting head. Could be used as sampling device.

B65-10110
MAGNETS POSITION X-RAY FILM FOR WELD INSPECTION
WAGNER, R. P. APR. 1965
M-FS-253
Film-positioning device uses magnets to hold X-ray film for weld inspection in nonferrous structures, such as tanks, where access to interior points is difficult.

B65-10111
PROBE TESTS MICROWELD STRENGTH
INNOVATOR NOT GIVEN /DOUGLAS AIRCRAFT CO./ APR. 1965
WOO-118
Probe is developed to test strength of soldered, brazed or microwelded joints. It consists of a spring which may be adjusted to the desired test pressure by means of a threaded probe head, and an indicator lamp. Device may be used for electronic equipment testing.

B65-10113
SHOCK MOUNT ISOLATES PRESSURE TRANSDUCERS FROM VIBRATION
ROGERO, R. S., JR. APR. 1965
JPL-631
Pressure transducer is isolated from shock and vibration forces by a pressure-compensated shock mount. Silicone elastomer O-rings within the shock mount serve as shock and vibration-damping pads.

B65-10114
AVERAGING PROBE REDUCES STATIC-PRESSURE SENSING ERRORS
RITCHIE, V. S. APR. 1965
LANGLEY-36
Averaging the high and low pressure admitted to a plenum through circumferentially spaced orifices provides a probe that accurately senses the free-stream static pressure on an aerodynamic surface. This surface does not have a preferred angle of inclination to the direction of the airstream cross flow.

B65-10115
INERT GAS SPRAYING DEVICE AIDS IN REPAIR OF HAZARDOUS SYSTEMS
TELEHA, S. APR. 1965
LEWIS-8B
Inert gas spraying device aids in safely making mechanical repairs to a cryogenic fluid system without prior emptying of the system. This method can be applied to any natural or bottled gas system and with modifications to gasoline transports.

B65-10116
LOW-COST TOOL MINIMIZES DAMAGE TO O-RINGS DURING INSTALLATION
INNOVATOR NOT GIVEN /N. AM. AVIATION/ APR. 1965
MSC-140
Tapered cylindrical tool enables O-ring installation over threaded fasteners without seal damage.

B65-10121
FLOW CONTROL VALVE IS INDEPENDENT OF PRESSURE DROP
INNOVATOR NOT GIVEN /THIOKOL CHEM. CORP./ APR. 1965
JPL-WOO-039
Remote control of fluid flow in a low-power system is established by a flow control valve with a flapper and nozzle flow control. Constant rates are maintained despite fluctuating pressure across the valve.

B65-10126
COLLAPSIBLE TRUSS STRUCTURE IS AUTOMATICALLY EXPANDABLE
INNOVATOR NOT GIVEN /GE/ MAY 1965
GSFC-265
Coil springs wound with maximum initial tension in a three-truss, closed loop structure form a collapsible truss structure. The truss automatically expands and provides excellent rigidity and close dimensional tolerance when expanded.

B65-10130
COLLAR POSITIONS STRIP STOCK USED TO FORM COIL ON MANDREL
BLAZE, C. J. JUN. 1965
LEWIS-198
Guide collar fastened to a mandrel helps form a coil of strip sheet metal stock. The collar maintains the strip stock in its proper position during winding of each turn of the coil.

B65-10131
APPARATUS FACILITATES PRESSURE-TESTING OF METAL TUBING
GYORGAK, C. A. MAY 1965
LEWIS-174
Burst-testing of refractory metal tubing is conducted in an apparatus in which tubular specimans are firmly gripped and test pressures and temperatures are applied. Porosity, flaw, and fatigue-stress rupture are also tested.

B65-10134
HIGH PERMEABILITY SEMICONDUCTORS PERMIT CLOSE-TOLERANCE SOLDERING
INNOVATOR NOT GIVEN /HUGHES AIRCRAFT CO./ MAY 1965
GSFC-319
High permeability semiconductors concentrate magnetic field energy in small areas to allow soldering of small components. This device can be used in microminiature parts in thin-film fabrication.

B65-10135
COILED SPRING MAKES SELF-LOCKING DEVICE FOR THREADED FASTENERS
INNOVATOR NOT GIVEN /N. AM. AVIATION/ MAY 1965
MSC-149
Coiled spring device provides both easy self-locking and disassembly for screw-threaded fasteners. When the fastener turns in one direction the spring grips one of the fastener threads and releases when the fastener turns in the opposite direction.

B65-10141
INTEGRAL RIBS FORMED IN METAL PANELS BY COLD-PRESS EXTRUSION
BRADIE, P. R. SCHUERER, P. H. MAY 1965
M-FS-230
Metal panels with integral ribs are formed by the cold-press extrusion method without material loss. Integral ribs in aluminum-alloy panels are formed by this process.

B65-10144
LIGHTWEIGHT LOAD SUPPORT SERVES AS VIBRATION DAMPER
LAYMAN, W. E. MAY 1965
JPL-661
Omnidirectional antennas and solar panels can be supported by a thin-walled tubular strut. Silicon grease is used as the vibration-damping medium and a coil spring supports static loads.

B65-10147
IMPROVED FLUID CONTROL VALVE EXTENDS DIAPHRAGM LIFE
MAC GLASHAN, W. F. MAY 1965
JPL-345
Wear resistance of flexible diaphragms in fluid control valves is increased by incorporating a soft rubber washer at the bottom of the piston, a flexible buffer between the diaphragm and the valve seat, and a fluid feedback arrangement. The stress and wear of components at the valve seat are minimized.

B65-10148
BIDIRECTIONAL TORQUE FILTER ELIMINATES BACKLASH
BAKER, R. VEILETTE, L. WILLIAMS, S. MAY 1965
GSFC-335
Two elastic springs connecting a hub and two spur gears absorb bidirectional step torque differentials and provide antibacklash characteristics between input and output shafts. This device is used in precise control systems.

B65-10149
CANTILEVER SPRINGS MAINTAIN TENSION IN THERMALLY EXPANDED WIRES
TERSELIC, R. A. MAY 1965
LEWIS-136
Two deflected cantilever springs strung with wire provide force displacement compensation to maintain tension in the wires as they undergo thermal expansion. This method of maintaining tension in thermally expanded wires is used in electric space heaters and residential heat exchangers.

B65-10150
METAL BELLOWS CUSTOM-FABRICATED FROM TUBING
MAY 1965
LEWIS-192
Mandrel assembly mounted in a lathe chuck is used with a forming wheel to roll-form bellows from standard sheet metal tubing. Spacers and mandrels of various sizes custom-fabricate bellows of any desired dimensions.

B65-10153
INNOVATOR NOT GIVEN /MIT/ MAY 1965
MSC-127
Pretreating metal with a thin coating of pure titanium improves the wettability and flow of brazing alloys. This can be used in the manufacturing of aviation and aerospace components where high strength-to-weight ratio must be achieved.

B65-10154
SYSTEM MEASURES UNIDIRECTIONAL FORCES, EXCLUDES EXTRANEOUS FORCES
BEHRENDT, D. R. HEGLAND, D. E. MAY 1965
LEWIS-170
System measures unidirectional force without interference from other directional forces. The measuring apparatus is mounted so that it only moves vertically and is constrained from horizontal and rotational movement. This system can be used to accurately measure small forces in one direction, or as an analytic balance.

B65-10155
FRICTIONLESS BEARING USES PERMANENT MAGNETS
INNOVATOR NOT GIVEN /N. AM. AVIATION/ MAY 1965
1965
MSC-32
Frictionless bearing using permanent magnets on one end of the rotating shaft member and in the stationary housing member is used for lightly loaded high speed rotating shafts.

B65-10160
LOW-COST SEAL COMPENSATES FOR SURFACE IRREGULARITIES
/AEROJET-GEN. CORP./ JUN. 1965
NU-0016
Seal assembly consisting of a steel V-ring and a perforated tubular fluorocarbon polymer O-ring provides a barrier to gaseous and liquid hydrogen under high pressure.

B65-10163
DEVICE DISCONNECTS SEVERAL COUPLINGS SIMULTANEOUSLY
KORSYTHE, A. K. JUN. 1965
JPL-226
Actuator assembly disconnects electric cable and fluid-line coupling from a rocket. The disconnector incorporates interconnected hydraulic cylinders which effect an equal and simultaneous displacement of pistons upon admission of

compressed air through a solenoid control valve.

B65-10166
SPLICE PLATE DESIGN ASSURES STRUCTURAL SEPARATION BY MILD EXPLOSIVE
INNOVATOR NOT GIVEN /N. AM. AVIATION/ JUN. 1965
1965
MSC-137
Splice plate with mechanical joint is separated by expanding gases of a mild detonating fuse. The gas pressures of the low-yield explosive eliminate component fragmentation and achieve excellent control of the separation line.

B65-10168
LATHE ATTACHMENT USED TO MACHINE ELLIPTICAL CONES
ALLEN, J. H., SR. WOBIG, D. A. JUN. 1965
MSC-100
Close-tolerance elliptical cones are fabricated by cutting-tool guide assembly used with conventional tracer cartridge on turret lathe accurately produced in two machine operations

B65-10170
METAL PARTS HYDROSIZED BY EXPLOSIVE FORCE
INNOVATOR NOT GIVEN /N. AM. AVIATION/ JUN. 1965
1965
M-FS-289
Large metal parts are sized by a charge exploded above a sealed container filled with evacuated die and water. Explosive hydrosizing achieves close dimensional tolerances, eliminates damage to the surface, and allows longer force application and more even pressure distribution.

B65-10174
PRESSURE TRANSDUCER SYSTEM IS FORCE-BALANCED, HAS DIGITAL OUTPUT
INNOVATOR NOT GIVEN /GIANNINI CONTROLS CORP./
M-FS-154
Forced-balanced pressure transducer and associated circuitry controls pressure testing of space equipment systems under actual operating conditions. The transducer and circuitry automatically converts the sensed pressure to digital form.

B65-10176
DEVICE ENABLES MEASUREMENT OF MOMENTS OF INERTIA ABOUT THREE AXES
CONN, J. JUN. 1965
GSFC-49
Device measures moments of inertia of an irregularly shaped mass about three mutually perpendicular axes by the standard pendulum and torque methods. A fixture suspends the test mass at one point and can be adjusted to allow oscillation of the mass.

B65-10177
EPOXY-RESIN PATTERNS SPEED SHELL-MOLDING OF ALUMINUM PARTS
INNOVATOR NOT GIVEN /ALABAMA UNIV./ JUN. 1965
M-FS-303
Half patterns cast from commercial epoxy resin containing aluminum powder are used for shell-molding of aluminum parts. The half patterns are cast in plastic molds of the original wooden pattern. Ten serviceable sand-resin molds are made from each epoxy pattern.

B65-10180
NEW NUT AND SLEEVE IMPROVE FLARED CONNECTIONS
GARRARD, J. S. JUN. 1965
M-FS-194
Improved nut and sleeve of standard stainless steel flared tube connection allows forces on the mating surfaces to be uniformly applied. This can be applied to pressurized fluid systems such as refrigeration, air conditioning, and hydraulic systems.

B65-10181
HAND TOOL BENDS COMPONENT LEADS ACCURATELY
INNOVATOR NOT GIVEN /CHRYSLER CORP./ JUN. 1965
M-FS-308
Hand-operated die set bends, without damage, electrical component leads to perfectly match holes in printed circuit board. This tool speeds up printed circuit fabrication and reduces the number of component rejections.

B65-10185
DISPENSING SYSTEM ELIMINATES TORSION IN DEPLOYED HOSES
INNOVATOR NOT GIVEN /IIT RES. INST./ JUN. 1965
MSC-80
Dispensing system uses a rotating drum, transfer arm, and stationary drum to deploy, reel in, and store an attached hose. This system which eliminates torsion and minimizes strain and wear of flexible hoses, is used for handling flexible cables that have one end permanently attached to an outlet or connector.

B65-10191
EXTENDIBLE COLUMN CAN BE STOWED ON DRUM
HOLTZ, G. M. HOWARD, E. A. JUN. 1965
JPL-686
Column formed from a series of segments held together by an internal spring or cable can be coiled on a drum or extended into a rigid structure. This storable coil is useful in boring for soil samples and supporting electrical and optical sensors.

B65-10192
SPIRAL HEATER COILS HAND-FORMED WITH FIXTURE
CHATTIN, J. H. JUN. 1965
LEWIS-208
Bench model jig and fixture used for hand fabricating spiral coils of various lengths from flat strip stock. This tool is used to make springs and coils to custom lengths.

B65-10198
SELF-ALIGNING FIXTURE USED IN LATHE CHUCK JAW REFACING
LINN, C. C. JUN. 1965
FRC-21
Self-aligning tool positions and rigidly holds lathe chuck jaws for refacing and truing of the clamping surface. The jaws clamp the fixture in the manner of clamping a workpiece. The fixture can be modified to accommodate four-jawed checks.

B65-10201
ELECTRICAL CABLE CONNECTOR-CLAMP HAS SMOOTH EXTERIOR SURFACE
INNOVATOR NOT GIVEN /N. AM. AVIATION/ JUN. 1965
1965
MSC-154
Electrical cable connector-clamp fitted with a collet has a smooth exterior surface that can be easily gripped. The collet clamps a portion of the cable and provides for connecting it to a standard electrical connector.

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B65-10121	02-05	JPL-WOO-039
B65-10122	02-02	LANGLEY-134
B65-10123	02-01	GSFC-289
B65-10124	02-01	GSFC-AE-21

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